We claim:

1. A process of filtering water comprising the steps of,

(a) providing one or more modules of filtering membranes immersed in water in a tank open to the atmosphere;

(b) providing a retentate outlet from a portion of the tank above the one or more modules;

(c) permeating filtered water by (i) adding a selected volume of feed water to the tank and (ii) withdrawing substantially the selected volume of water through the one or more modules as permeate;

(d) periodically stopping permeation to perform a deconcentration step, the deconcentration step further comprising providing scouring bubbles from below the modules and at least one of (I) backwashing or (II) providing a flow of feed water into the tank from below the modules or both (I) and (II); and,

(e) flowing excess water containing retained solids out of the retentate outlet during the deconcentration step.

2. The process of claim 1 wherein the modules cover most of the horizontal cross sectional area of the tank.

3. The process of claim 1 wherein the modules cover more than 90% of the horizontal cross sectional area of the tank.

4. The process of claim 1 wherein the modules cover substantially all of the horizontal cross sectional area of the tank.

5. The process of claim 1 wherein aeration is commenced before backwashing.

6. The process of claim 1 wherein the filtering membranes are hollow fibres oriented horizontally.

7. The process of claim 4 wherein the filtering membranes are hollow fibres oriented horizontally.

8. A process of filtering water comprising,

repeating a filtration cycle having

(a) a permeation step wherein,

(i) feed water enters a tank; and,

(ii) a similar volume of permeate is withdrawn from the tank by suction on an inner surface of submerged filtering membranes; and,

(b) a deconcentration step wherein,

(iii) scouring bubbles rise through the modules;

(iv) the membranes are backwashed; and,

(v) water containing solids flows upwards through the modules and exits the tank.

9. The process of claim 8 wherein the filtering membranes are hollow fibres oriented horizontally.

10. A filtering reactor comprising,

(a) a tank open to the atmosphere;

(b) one or more modules of suction driven filtering membranes in the tank for withdrawing a filtered permeate;

(c) an inlet to add feed water to the tank from below the one or more modules;

(d) a retentate outlet to discharge water containing retained solids from the tank from above the one or more modules; and,

(e) an aerator below the one or more modules.

11. The reactor of claim 10 wherein the modules cover most of the horizontal cross sectional area of the tank.

12. The reactor of claim 10 wherein the modules cover more than 90% of the horizontal cross sectional area of the tank.

13. The reactor of claim 10 wherein the modules cover substantially all of the horizontal cross sectional area of the tank.

14. The reactor of claim 10 wherein the retentate outlet incorporates an overflow or weir.

15. The reactor of claim 10 wherein the filtering membranes are hollow fibres oriented horizontally.

16. The reactor of claim 13 wherein the filtering membranes are hollow fibres oriented horizontally.

17. The process of claim 8 wherein feed water is provided from above the modules during permeation.

18. The process of claim 9 wherein feed water is provided from above the modules during permeation.

19. A process of filtering water comprising,

repeating a filtration cycle having

(a) a permeation step wherein,

(i) feed water enters a tank; and,

(ii) a similar volume of permeate is withdrawn from the tank by suction on an inner surface of submerged filtering membranes; and,

(b) a deconcentration step wherein,

(iii) scouring bubbles rise through the modules;

(iv) feed water flows into the tank from below the modules; and,

(v) water containing solids flows upwards through the modules and exits the tank.

20. The process of claim 19 wherein the filtering membranes are hollow fibres oriented horizontally.